L1 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2001 ACS
AN 1986:441196 HCAPLUS
DN 105:41196
TI Xylose fermentation by Candida shehatae and Pichia stipitis: effects of pH, temperature and substrate concentration
AU Du Preez, James C.; Bosch, Michiel; Prior, Bernard A.
CS Dep. Microbiol., Univ. Orange Free State, Bloemfontein, 9300, S. Afr.
SO Enzyme Microb. Technol. (1986), 8(6), 360-4
CODEN: EMTED2; ISSN: 0141-0229
DT Journal
LA English
AB The effects of temp., pH and xylose [58-86-6] concn. on the fermn. parameters of C. shehatae and P. stipitis were evaluated. The optimum pH was in the region pH 4-5.5 with an optimum fermn. temp. of 30.degree.. Max. fermn. rates were reached at 50 g L-1 xylose. A max. volumetric EtOH [64-17-5] productivity of .apprx.0.9 g (L-h)-1 was obtained with both yeast strains. The EtOH yield of C. shehatae decreased considerably when cultivated at >30.degree. or when the xylose concn. was increased. Xylitol [87-99-0] accumulated concomitantly. Xylitol prodn. by P. stipitis was obsd. only during cultivation at 36.degree.. Whereas the EtOH yield of C. shehatae was usually .apprx.75% of the theor. max., it was 85-90% with P. stipitis.

L2 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2001 ACS
AN 1990:34371 HCAPLUS
DN 112:34371
TI Utilization of the hemicellulosic fraction of agro-industrial residues by yeasts
AU Amaral-Collaco, M. T.; Girio, F. M.; Peito, M. A.
CS Dep. Tecnol. Ind. Alimentares, LNETI, Lisbon, 1-1900, Port.
SO Enzyme Syst. Lignocellul. Degrad., [Proc. Workshop Prod., Charact. Appl. Cellul.-, Hemicellul.-Lignin-Degrading Enzyme Syst.] (1989), 221-30. Editor(s): Coughlan, Michael P. Publisher: Elsevier, London, UK.
CODEN: 56SAAR
DT Conference
LA English
AB The isolation of industrially important strains able to produce significants amts. of either EtOH or xylitol was attempted. Pichia stipitis showed potential for improvement of its EtOH prodn., since it did not form xylitol. The xylitol yield and volumetric productivity of Debaryomyces hansenii, the best xylitol producer, was 0.7 g/g and 2.23 g/L-h, resp. These values compare favorably with other reported values.

L3 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2001 ACS
AN 1991:41014 HCAPLUS
DN 114:41014
TI The fermentation of xylose: studies by carbon-13 nuclear magnetic resonance spectroscopy
AU Taylor, K. B.; Beck, M. J.; Huang, D. H.; Sakai, T. T.
CS Dep. Biochem., Univ. Alabama, Birmingham, AL, 35294, USA
SO J. Ind. Microbiol. (1990), 6(1), 29-41
CODEN: JIMIE7; ISSN: 0169-4146
DT Journal
LA English
AB The fermn. of D-xylose by Pachysolen tannophilus, Candida shehatae, and Pichia stipitis has been investigated by 13C-NMR spectroscopy of both whole cells and exts. The spectra of whole cells metabolizing D-xylose with natural isotopic abundance had significant resonance signals corresponding only to xylitol, ethanol, and xylose. The spectra of whole cells in the presence of [1-13C]xylose or [2-13C]xylose had resonance signals corresponding to the C-1 or C-2, resp., of xylose, the C-1 or C-2, resp., of xylitol, and the C-2 or C-1, resp., of ethanol. Xylitol was metabolized only in the presence of an electron acceptor (acetone) and the only identifiable product was ethanol. The fact that the amt. of ethanol was insufficient to account for the xylitol metabolized indicates that an addnl. fate of xylitol carbon must exist, probably carbon dioxide. The rapid metab. of xylulose to ethanol, xylitol, and arabinitol indicates that xylulose is a true intermediate and that xylitol dehydrogenase catalyzes the redn. (or oxidn.) with different stereochem. specificity from that which interconverts xylitol and D-xylulose. The amino acid L-alanine was identified by the resonance position of the C-3 carbon and by enzymic anal. of incubation mixts. contg. yeast and [1-13C]xylose or [1-13C]glucose. The position of the label from both substrates and the identification of isotope also in C-1 of alanine indicates flux through the transketolase/transaldolase pathway in the metab. The identification of a resonance signal corresponding to the C-1 of ethanol in spectra of yeast in the presence of [1-13C]xylose and fluoroacetate (but not arsenite) indicates the existence of equilibration of some precursor of ethanol (e.g. pyruvate) with a sym. intermediate (e.g. fumarate or succinate) under these conditions.

L4 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2001 ACS
AN 1983:70314 HCAPLUS
DN 98:70314

TI Conversion of pentoses by yeasts

AU Gong, Cheng Shung; Claypool, Tanya A.; McCracken, Linda D.; Maun, Christine M.; Ueng, Pear P.; Tsao, George T.

CS Lab. Renewable Resour. Eng., Purdue Univ., West Lafayette, IN, 47907, USA

SO Biotechnol. Bioeng. (1983), 25(1), 85-102
CODEN: BIBIAU; ISSN: 0006-3592

DT Journal

LA English

AB The utilization and conversion of D-xylose [58-86-6], D-xylulose [551-84-8], L-arabinose [5328-37-0], and xylitol [87-99-0] by yeast strains were investigated with the following results: (1) The majority of yeasts tested utilize D-xylose and produce polyols, EtOH [64-17-5] and org. acids. The type and amt. of products formed varies with the yeast strains used. The most commonly detected product is xylitol. (2) The majority of yeasts tested utilize D-xylulose aerobically and fermentatively to produce EtOH, xylitol, D-arabitol [488-82-4], and org. acids. The type and amt. of products varies depending upon the yeast strains used. (3) Xylitol is a poor C and energy source for most yeasts tested. Some yeast strains produce small amts. of EtOH from xylitol. (4) Most yeast strains utilize L-arabinose, and L-arabitol [7643-75-6] is the common product. Small amts. of EtOH are also produced by some yeast strains. (5) Of the 4 substrates examd., D-xylulose was the preferred substrate, followed by D-xylose, L-arabinose, and xylitol. (6) Mutant yeast strains that exhibit different metabolic product patterns can be induced and isolated from Candida, Saccharomyces cerevisiae, and other yeasts. These mutant strains can be used for EtOH prodn. from D-xylose as well as for the study of metabolic regulation of pentose utilization in yeasts.